January 20, 2009

Dr. Harmon F. Patrick
Catawba Presbytery Commission for the Old Brick Church
374 Patrick Road
White Oak, SC 29180

Re: Cemetery survey at the Old Brick Church (Ebenezer A.R.P. Church, Fairfield County)

Dear Dr. Patrick,

I and my crew visited the Old Brick Church on October 14 and 15 for the purpose of conducting a penetrometer survey and mapping the cemetery. The goal was to determine if unmarked graves were present in the cemetery and, if so, the approximate number and their location. Once completed, the secondary goal was to produce a map of the churchyard showing the location of the various markers, as well as the identified unmarked graves. This letter will provide you with an overview of our work and findings.

Methods

There are a variety of geophysical techniques that can be used to identify probable grave locations. For this work we have used a penetrometer.

More precise and reliable than a probe, the hand penetrometer measures soil compaction in pounds per square inch (psi). Areas of posited graves will have lower psi readings than those areas where there has been no digging. Like probing, the penetrometer is used at set intervals along grid lines established perpendicular to the suspected grave orientations. The readings are recorded and used to develop a map of probable grave locations. We have found very consistent ranges in soil compaction at cemeteries throughout the region and have previous experience in Piedmont and Blue Ridge areas ranging from Charlotte, North Carolina (Settlers' Cemetery) to Waynesville, North Carolina (Maple Grove Cemetery) to a family cemetery in Greenville County, South Carolina. We have also conducted penetrometer

surveys at African American cemeteries in Petersburg, Virginia and in Herdon, Virginia. This is a relatively common forensic anthropology technique and the penetrometer is used extensively by the FBI to locate clandestine graves. While it is never possible in our field to offer guarantees, I have tremendous confidence in the penetrometer and have used it successfully at several dozen cemeteries.


Example of penetrometer use.

This technique *can* be affected by either very dry soils (which was not a problem during the study) or by artificial compaction (for example, the gate entrance to the cemetery exhibits very high compaction from the use of this gate, as does the area immediately in front of the church).

At this particular site we began in the northeast corner of the property, examining the rows of relatively new graves to determine their compaction levels for a baseline. We tested at approximately 2 foot intervals in an effort to identify graves. Testing continued throughout the eastern half of the cemetery, using the stone wall as the boundary, at 2-foot intervals.

Identified graves were marked by placing surveyor pen flags at the head and foot, with flagging tape stretching between the two flags. Each such marking reflects the head, foot, and centerline of the grave. Actual width dimensions are typically between 1.5 and 2-feet on both sides of this centerline. Clearly marked graves (i.e., those with commercial monuments, funeral home markers, or fieldstones) were not marked – but were, of course, picked up in our mapping efforts.

Findings

Marked graves were found to exhibit between 75 and 150 psi at depths from 1 foot to 3 feet (the maximum depth of penetration) in the northeast quadrant of the cemetery. Some of these marked graves revealed the use of a vault, typically between 18 inches and 2 feet below the extant ground surface. Areas thought to be non-graves revealed compaction ranging from 175 to 200 psi. We found that as we moved upslope (i.e., to the south) that compaction levels increased, often to levels exceeding 300 psi. Similarly, marked graves exhibited compaction of 150 to almost 200 psi. The reason for this is not entirely clear, although I suspect it is the result of extensive erosion that has exposed red clay subsoil upslope along the southern edge of the

cemetery. We did encounter small, isolated areas of reduced compaction – these seem consistent with removed trees and were not marked as graves.


Graves identified in the northeastern quadrant of the cemetery.

Although the western half of the cemetery is densely populated, we did examine a number of graves in this area. Graves in the lower, northern area were identifiable, while marked graves in the southern or upslope area were not easily recognizable – exhibiting only very modest differences with the non-grave soils.

This work identified 13 unmarked graves (i.e., graves with no commercial or field stone markers of any description). Most, although not all, were located in the northeastern quadrant and appear to be associated with other, marked, graves in this area. By that I mean they appear in proximity to marked graves and in the same lines with similar orientations.

Please understand that I classify what we have found as "probable graves" since the only way to verify the function is through excavation – an expensive and invasive undertaking that does not seem warranted in this case.

When a cemetery is threatened, we are usually "liberal" in our interpretation since we prefer false positives than failing to identify a legitimate grave. While I understand that this cemetery is not threatened, we have nevertheless been relatively "liberal" since we believe it is better to have false positives then to have missed graves. Of course, I must again emphasize that this reflects our best professional judgment of grave locations and I would continue to urge caution and independent assessment prior to any grave excavation. Our findings are shown on the incorporated map.

The organization of this cemetery suggests that it began on the west side of the church, spreading southward and eastward on the south side of the church structure. Then, in the late nineteenth century it appears that a previously unused portion of the churchyard – the northeast corner – began to be used. This activity continues today.

Mapping

Mapping was conducted using a Sokkia 530R3 Total Station. This instrument ensures a very high level of precision. As control points we used the church building itself. I am enclosing multiple copies of the map for your use. Please let me know if you need additional copies; I will be happy to print them.

Recommendations

I recommend that prior to the excavation of any grave an effort be made to independently confirm our findings and/or the new grave be excavated with caution. In this regard I would avoid attempting to place additional burials in small open areas between existing burials and, instead, focus on the relatively large open area on the east side of the church.

Summary

In conclusion, we did identify 13 unmarked graves in the cemetery. These conclusions, however, are tempered by the very compact soil as we moved upslope from north to south. There do appear to be open areas in the southeast corner of the cemetery where additional burials may take place, although as recommended above care should be taken in excavating additional graves.

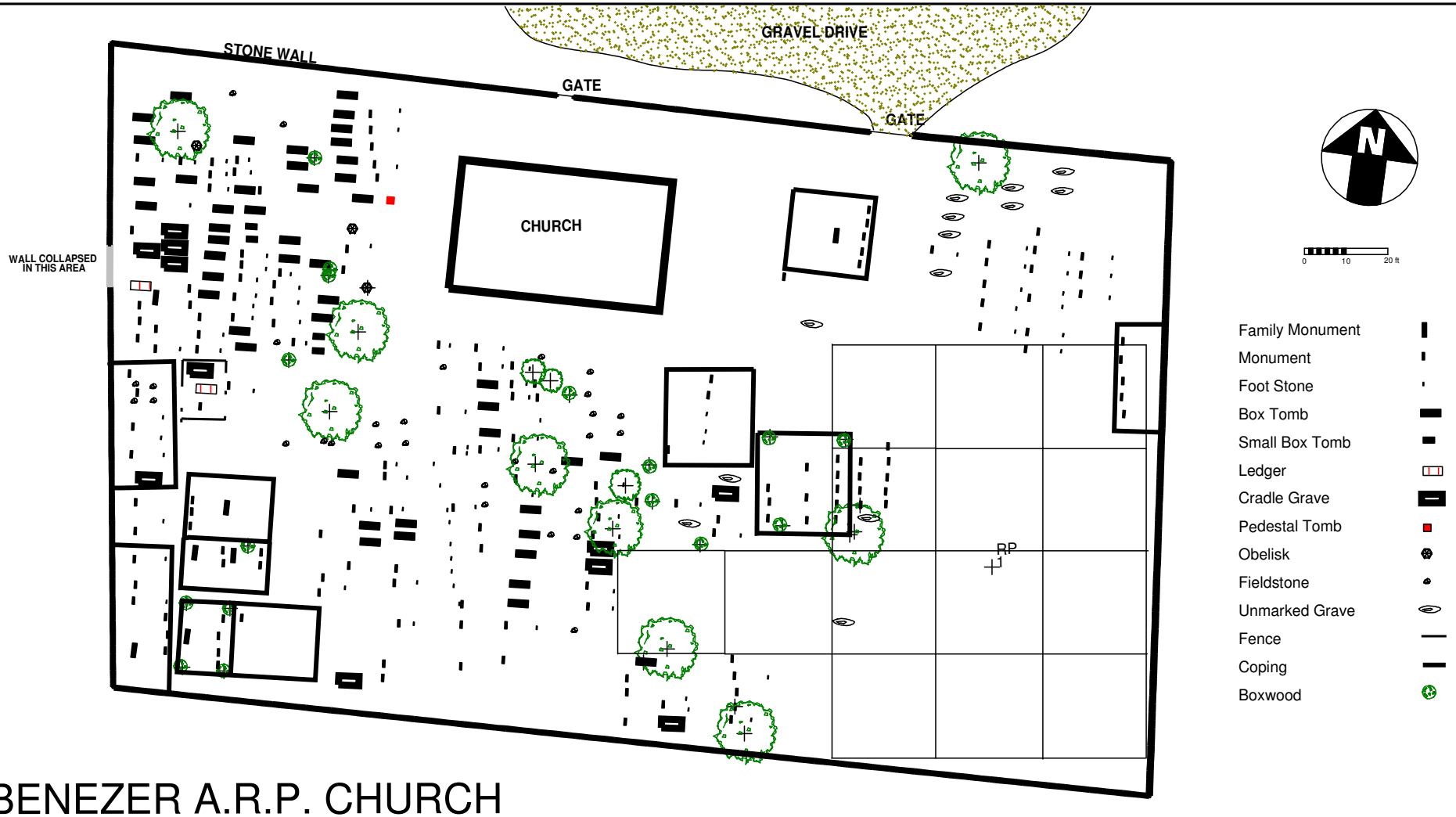
I am enclosing our invoice for the work at the agreed rate for the total of $4,900.60. I do wish to apologize for the delay in getting this to you. While it is no excuse, I was laid up for several months as a result of spinal surgery and I'm afraid that this is one of the projects that did not receive the prompt attention it deserved.

We appreciate you contacting us and providing us with the opportunity to work with you. If you have any questions concerning the findings please contact me directly at 803-787-6910 or via email at trinkley@chircora.org.

Sincerely,

Michael Trinkley, Ph.D.
Director

Enclosures



EBENEZER A.R.P. CHURCH
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November 3, 2008